

A LIST OF THE BUTTERFLIES OF THE SIMLA HILLS

Compiled by

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So much fresh information has come to hand since the publication of de Rhé Philipe's admirable list in Vol. xxxv of the Society's Journal that the need for a revised list has been apparent for some time.

This list is intended to cover an area roughly corresponding to that included within the Simla Hill States—that is from the edge of the hills in as far as the Thibet border by Shipki Pass, with Chandigarh, Chaur and the Baspa Valley as its eastern limits; and the Spiti Valley, the Jalori Pass and the debouchment of the Sutlej into the plains marking its western. This includes a great variety of country from 2,000 ft. to 20,000 ft. Up to date we have records of the actual capture of 278 different species within this area.

While the commoner species may be caught almost everywhere, dependent, of course, on season and altitude, a knowledge of the best general collecting grounds is essential to the amassing of a representative collection. Bare hilltops, lightly-wooded nullahs containing streams, and certain wooded ridges are generally profitable localities. Of the nullahs, those at San Damiano near Mashobra, above Chadwick Falls, and that between Chota Simla and Jesus and Mary Convent are excellent, especially before the rains. After the rains nullahs of this type are not nearly so profitable, probably because there is no lack of water elsewhere. Other good nullahs are those below the Walker Hospital and the Grand Hotel. The plateau on top of Kufri Hill and the summit of Hutoo are especially good and many valuable specimens may be taken on the Mashobra-Mahasu ridge, Potter's Hill and the country round Narkanda, Bagi and Sungri. In the neighbourhood of Simla, other good spots are Shamri Nullah (the rocky gorge between Simla E. and Tara Devi Hill) and some of the nullahs on Tara Devi itself. For low elevation forms Chandigarh, Koti, the valleys and ravines round Kalka and Chaba (especially the valley between Basantpur and the Sutlej) are strongly to be recommended. The Chaur neighbourhood should be good, but I have only a passing knowledge of it and it seems to have been little worked. In a region such as the Simla Hills there must be many other excellent localities for those with the time and energy to find them.

Horse-chestnut and buddleia blossom are especially valuable in attracting a variety of species, and many good butterflies will be caught in gardens. In this respect it is interesting to note that

I know of 126 different species caught within the last two and a half years in the compounds of Bishop Cotton School and the Preparatory School up here. This number approaches half the entire total of different butterflies caught in the Simla Hills. Many of my most valuable insects have been taken within fifty yards of my office.

The best seasons for collecting are undoubtedly May and early June and after the rains in September and early October, although good butterflies will be taken during all the warmer months in Simla and almost throughout the year at lower elevations. Among the inner hills, beyond the monsoon area, July is the best month—the season for butterflies there is very short and late.

Apart from the 277 species actually recorded in our list there are a number of others which I have included in italics, which, on the analogy of their having occurred to the east and west of us, should probably turn up in our area. Doubtless there are others not mentioned at all which may wander into the district or establish themselves. In this respect it is interesting to note that the two species, *Aporia agathon phryxe* Bois. and *Papilio protenor protenor* Cram. are now very common and not at all rare respectively. De Rhé Philipe noted the former as 'not plentiful anywhere in the district', and the latter he had not met with.

This list is based on de Rhé Philipe's which has simplified our task considerably. Those butterflies that were not mentioned at all in his list I have marked **; those that he mentioned as likely to be caught but of which he had no definite record of capture are marked *. To those that have hitherto been recorded solely as plains and low foothill species and have since been caught in the immediate vicinity of Simla I have given †. A few species have been omitted from his list.

In conclusion we should like to thank Brigadier Evans for his help in identifying many specimens for us.

PAPILIONIDÆ.

1. **Tros aristolochiae aristolochiae*, Fabricius.

This butterfly has occasionally been caught below Kalka before and after the rains.

Tros philoxenus philoxenus, Gray.

Tros dasarada ravana, Moore.

There is no record of these butterflies having been taken nearer than Kulu.

2. *Chilasa agestor govindra*, Moore.

Appears only for a very short time before the end of March and during the first two weeks or so of April, although I have a very worn male, taken on May 14th. It is not a common butterfly, but with perseverance it is possible to pick up one or two a year. It will be found in oak forest, and is generally seen flying high among the trees, and will be taken in the wooded country on Tara Devi and at Summerhill.

3. ***Chilasa clytia clytia*, Linnaeus.

May be caught very occasionally at low elevations at the end of March and beginning of April, and again in September.

† v. *dissimilis*.

This may be taken at the same times and places as *clytia clytia* but also extends into the hills where it is taken chiefly in May and early June. We have specimens taken here at Bishop Cotton Preparatory School, 6,800', 18-5-'38 and 7-6-'39 as well as one caught by Mr. Jones in the Park and another in my collection caught 'somewhere in Simla'. These are our only records at this altitude where it is very rare. Chaba is a likely spot for this and *clytia clytia*.

4. **Papilio protenor protenor*, Cramer.

The 'Rose Monal' may be taken from the end of March until July though stragglers may be met with as late as the end of August. It is never uncommon though most specimens may be caught about the beginning of the rains. It does not appear after the monsoon.

5. *Papilio polyctor polyctor*, Boisduval.

This butterfly has three broods and may be picked up between March and October from about 3,000' to 7,500'. To obtain the small D.S.F. butterflies a visit to the bed of Shamri Nullah where it joins the stream from Chota Simla is sure to be rewarded with a number of perfect specimens. Early April is the best time for this form. When the buddleia comes out early in June it is an unfailing attraction to this butterfly, as also are thistles.

6. *Papilio arcturus arius*, Rothschild.

An even more beautiful insect than the last which it resembles. It may be taken above about 7,500' and can be caught fairly frequently around the San Damiano Nullah. On the whole, though, it is a butterfly most likely to be caught among the hills beyond Narkanda. It may be taken in May, June and again in September.

7. *Papilio polytes romulus*, Cramer.

This butterfly is met with sparingly above 4,000', up as far as Simla, between April and October. Below 4,000' it is not uncommon. I have met with numbers below Asni Bridge in July and in the Giri valley below Fagu in September. Of the female forms, *cyrus*, which is rare elsewhere, seems to be the commonest. As *Tros hector* does not appear in northern India and *Tros aristolochiae* only sparingly on the fringes of the district, this is to be expected. I have, however, caught the *stichius* variety at 6,600' in May and have seen the mimic of *hector* at 5,700' in October.

8. †*Papilio demoleus demoleus*, Linnaeus.

This butterfly occurs sparingly up to 7,000'. A few orange and lime trees are to be found up to about 4,600' in the sheltered valleys and the larva will possibly be found feeding on these. I have caught it in Simla in April and May and again after the rains.

9. *Papilio machaon asiatica*, Men.

May be taken from the end of March to September, above about 4,000'. The grassy slopes known as Butt Plain below B.C.S. will often afford one or two specimens but Kufri Hill is better, and it is particularly abundant around Narkanda, on Hatu and among the Alpine meadowland further into the hills. We have the short-tailed *ladakensis* variety from Puri, a short way beyond Shipki, so it may turn up on the Shipki Pass just in our area.

10. **Pathysa eurous cashmirensis*, Rothschild.

This very local insect has only been taken between the middle of April and the second week of May. It has been caught at San Damiano, along the Mashobra road approaching Mashobra, and at Summerhill.

11. *Zetides cloanthus*, Westwood.

12. *Zetides sarpedon sarpedon*, Linnaeus.

According to our records these butterflies must have a brood at the end of March and another at the end of May, but they may also be taken during the rains and de Rhé Philipe mentions them as post-monsoon species as well. *sarpedon* is not common, but *cloanthus* may often be taken on horse-chestnut blossom and on buddleia. It can also be caught in the valleys settling

on damp mud. They have both been taken from about 4,500' up to 8,900' (Kufri Hill).

13. **Parnassius jacquemontii jacquemontii*, Boisduval.

14. **Parnassius epaphus nirius*, Moore.

These butterflies will not be found below 12,000'. They have been taken on the Bhabeh Pass, Kunawar, and in the Shipki neighbourhood in July, Epaphus is the commoner of the two.

15. *Parnassius hardwickeii hardwickeii*, Gray.

This hardy species is found from 6,500' (Potters Hill) to 17,000' (Western Tibet). At the lower elevations it may be caught during every month of the year. In Simla itself only occasional specimens are to be seen, but there are generally some to be caught after the rains on the slopes behind Sanjauli. From Narkanda inwards, before and after the rains, this butterfly is to be found in great numbers on the open slopes where the ground is carpeted with flowers.

16. ***Parnassius delphius stoliczanus*, Felder.

We received four specimens of this very rare 'Apollo' from the Shipki La, 15,000', this year, taken in July.

Parnassius simo simo, Gray.

Parnassius acco acco, Gray.

Evans gives Shipki as a locality for the former and Spiti for the latter. They are both very rare and we have no information about either.

17. **Parnassius charltonius*, Gray.

We have a number of specimens from Shipki, 14,000', taken in July.

PIERIDAE.

18. ***Leptosia nina nina*, Fabricius.

This butterfly has been taken near Kalka and Chandigarh, 2,000', in October and November. As this must be the extreme western edge of its limits it will of necessity be rare. It is not likely to be found at a higher altitude than 2,000'.

Baltia butleri butleri, Moore.

Euchloe ausonia daphalis, Moore.

Mentioned by Evans as found from Ladak and Chitral to Kumaon, but we have no record of their capture. They will possibly be caught on the inner ranges of the district.

Pieris chloridice, Hubner.

We have specimens from Puri, W. Thibet, one day's march beyond Shipki. It may turn up on the Shipki La.

19. **Pieris callidice kalora*, Moore.

This has been caught in the Shipki neighbourhood in July above 12,000'. It is not likely to be found below this altitude and will most likely keep to the inner ranges.

20. ***Pieris daplidice moorei*, Robertson.

Fairly common in the Shipki neighbourhood in July above 12,000'.

21. *Pieris napi ajaka*, Moore.

I have not found this a very plentiful species, only having been able to collect two to date, although I have been on the look-out for it. Possibly one is likely to confuse it with the next species, and I believe others have been more fortunate than I. It will be caught in May and June and seems to prefer woodland and to come to water more readily than others of its genus. It can be caught at Mashobra and on Jakko, but it is not likely to be found below 7,000'.

22. *Pieris canidia indica*, Evans.23. *Pieris brassicae*, Linnaeus.

These two butterflies are so common as to need no description. They will be found almost everywhere during most of the year.

24. **Aporia nabellica nabellica*, Boisduval.

This extremely local insect may possibly be found in the hills beyond Narkanda above 8,000'. Our specimens come from further into the hills. We have it from Pangri, on the Tibet road, 8,500', and from the Baspa valley in July.

25. *Aporia leucodice soracte*, Moore.

Around Simla this insect appears during the first week in May and is very abundant until the rains break, when it disappears. It may be taken almost anywhere between 4,000' and 10,000'.

26. *Aporia agathon phryxe*, Boisduval.27. ***Aporia agathon caphusa*, Moore.

The light form *phryxe* and *caphusa*, the medium form, are common almost everywhere above 5,000' from the third week of May until shortly after the beginning of the rains. Some years they literally swarm and are to be seen in great numbers round horse-chestnut blossom. The two forms seem to be equally common.

28. **Delias eucharis*, Drury.

This species has been taken at Koti, 3,000', in September, and even as far into the hills as below the Cecil Hotel at Tutikandi, 6,500', in October, but, as this will be the extreme edge of its limits, it will be very rare in our area.

29. *Delias belladonna horsfieldii*, Gray.

Can be caught fairly frequently from about 4,000' up to at least 10,000' from April to June, and again after the rains. I have also a fresh specimen taken on July 11th. It has a habit of flying high, but, like so many other species, it comes readily to horse-chestnut blossom.

30. *Delias sanaca sanaca*, Moore.

Originally taken as a pale form of the last-mentioned butterfly, it appears just before the rains break. It is rather a scarce species, and Kufri Hill is a likely spot to find it, although I have caught it at B.C.S., 6,500'. Both this and the last species extend well into the hills.

Delias thysbe pyramus, Wallace.

Given by Evans as recorded from Simla to Burma, but we have no record of its appearance here.

31. *Belenois mesentina mesentina*, Cramer.

This is very common at low elevations but becomes less so higher up and is not likely to be caught above 8,500'. It will be found from April to June and again after the rains, though I have also seen it at the end of July. It generally keeps to open country and the bare spur about a mile below B.C.S. will generally afford a few.

32. *Huphina nerissa phryne*, Fabricius.

Common during and after the rains at the foot of the hills, but may be taken in fair numbers sometimes round Simla itself. Summerhill, 6,500', is a favourite spot, but it is not likely to be found higher up nor further into the hills than Simla itself.

33. ***Appias lalage lalage*, Doubleday.

The only recorded specimens were taken in the Glen and at Summerhill, 5 and 7-5-'38. They were all slightly worn so presumably the best time to look for them would be about a week earlier. Simla is probably the extreme western limit of this butterfly's range so it is bound to be a great rarity here.

34. ***Appias libythea libythea*, Fabricius.

This is also a great rarity in Simla though it is likely to be of more frequent occurrence at the foot of the hills. We have a specimen from Chandigarh, 2,000', in November, and one caught at B.C.S., 6,500', in early September. is the only record for Simla. I suspect that the latter butterfly was on migration as it was caught in conjunction with a number of *catopsiliae* and other butterflies which I had noticed flying in fair numbers in a northerly direction for three days during a break in the rains.

35. *Catopsilia crocale*, Cramer.

A common plains species which may be caught quite frequently in Simla, and even higher up, during and after the rains.

36. *Catopsilia pomona*, Fabricius.

May be caught at the same times and in the same places as the above and is abundant some years. The male form *catilla* is rather less common.

37. *Catopsilia pyranthe minna*, Herbst.

This butterfly is chiefly a plains species and is of rather uncommon occurrence at the altitude of Simla. Like the two previous butterflies it appears during and after the rains.

38. **Catopsilia florella gnoma*, Fabricius.

This is not likely to be found higher up than at the foot of the hills where it appears very sparingly. We have specimens from Chandigarh in November and from Chaba, 2,000', in August.

39. *Gonepteryx rhamni nepalensis*, Doubleday.

Abundant almost everywhere above about 5,000' during most months of the year.

40. *Gonepteryx aspasia zanea*, Moore.

This butterfly is not nearly as common as the last and is rather local round Simla though quite common on the open slopes beyond Bagi and very common on the higher parts of the road from Sainj to Chaupal (Balsan State). It will not be found much below 7,500' and may also be taken on Jakko, at Mashobra and further into the hills in April, May, June and after the rains.

41. *Terias libythea*, Fabricius.

Very plentiful in open grass country from the plains up to nine or ten thousand feet. I have caught a specimen near Sungri at 12,000'. At low elevations it will be met with from early spring till late autumn, but round Simla it will not often be caught except between early July and early October.

42. *Terias laeta laeta*, Boisduval.

Rather less abundant than the last; it, also, round Simla, is confined mainly to the monsoon and post-monsoon months, though at lower elevations it may be caught from spring to late autumn.

43. *Terias hecabe fimbriata*, Wallace.

A common butterfly of the khudsides below Simla during late August, September and October, though, again, at lower elevations it may be caught during most months of the year.

44. **Colias ladakensis*, Felder.

This is an uncommon species of the inner ranges and is not likely to be found below 12,000'. It has been taken at Shipki, 12,000', in July.

45. *Colias hyale hyale*, Linnaeus.

Will be caught fairly commonly in open country above about 5,000', together with its female form, *pallida* Staudinger, and its male form, *erata* Esperance, between March and June and again after the rains. It is rather commoner further into the hills. The two varieties are slightly less common than the typical form and of the two *pallida* will be caught the more often.

46. ***Colias eogene eogene**, Felder.

A rare butterfly of the inner hills which will only be taken at high elevations. It has been caught at Spiti, 12,000', in July.

47. **Colias croceus edusina**, Butler.

An abundant butterfly from the plains to 15,000'. It may be caught in open country during every month of the year near Simla.

48. **Ixias marianne**, Cramer.

A common species of the plains and foothills which occasionally may be taken in open country round Simla after the rains.

49. **Ixias pyrene satadra**, Moore.

Reported from the plains and valleys up to 7,000', it has even been caught in Simla, though it is rare above 5,000'. It is quite common below about 4,500' in the Giri Valley below Fagu and has been reported from the Asni and Sutlej Valleys. We have it from Nachar, 7,000', B.C.P.S., 6,800', Giri Valley 4,400'. It has also been taken at Annandale and Chaba. Season during and after the rains.

50. **Colotis etrida etrida**, Boisduval.

This is a plains species that appears sparingly at the foot of the hills. It may be caught higher up, however, as we have a record from Fagu, 8,000', though this must be most exceptional.

DANAIDÆ.

51. †**Danais aglea melanoides**, Moore.

In June this may be caught rather sparingly round Simla up to the altitude of Kufri Hill (8,900') where several have been taken. It will be found more frequently in the Kalka district at an earlier date.

52. **Danais tytia sita**, Kollar.

This is a hill species which is not likely to be taken much below 4,000'. Though never abundant, it is not an uncommon species and may be taken fairly frequently in the valleys, in Simla and even as far inland as Narkanda. It generally flies high. Season from April to June, and after the rains.

53. **Danais limniace mutina**, Fruhstorfer.

This is mainly a plains butterfly but it is by no means uncommon in Simla itself, though it is not likely to be taken much higher up. Here it may be taken from May to June and again after the rains.

54. **Danais melissa septentrionis**, Butler.

May be taken rather infrequently above about 4,000' in the spring and autumn.

55. **Danais plexippus**, Linnaeus.

Round Simla it may be taken in April and May and again after the rains. It is not common at this altitude and will not be caught much above 8,000'.

56. **Danais chrysippus**, Linnaeus.

A much more abundant species than the last-mentioned in this area, it may be taken very frequently round Simla in April, and less so after the rains. It extends a fair way into the hills and I have seen it at about 9,000' beyond Bagi, but this is probably about its maximum range. Both this and the latter prefer open country and are commoner at lower elevations, where they may be caught throughout the year.

57. **Euploea mulciber mulciber**, Cramer.

The range of this butterfly is given by Evans as 'Simla—Burma' and de Nicéville has recorded it as taken 'near Kalka.' However we have no information about it and have no other record of its capture.

58. *Euploea core core*, Cramer.

59. *Euploea core vermiculata*, Butler.

Vermiculata is the hill form, but it is much scarcer throughout this area than *core core*. Both are common from the plains up to about 4,000', but above that they are rather rare and will not be caught much above Simla. The season at this altitude is from May till autumn, though more protracted lower down.

SATYRIDÆ.

Mycalesis francisca sanatana, Moore.

Given by Evans as appearing from 'Kulu to Burma', but we have no record of its capture.

60. *Mycalesis perseus typhlus*, Fruhstorfer.

61. *Mycalesis perseus blasius*, Fabricius.

De Rhé Philipe states that both of these occur fairly frequently at low elevations throughout the warmer months up to 3,000', but the only specimen we have is of *blasius* from Chaba, 2,000', taken in March.

62. *Mycalesis mineus mineus*, Linnaeus.

Not uncommon at low elevations and occasionally taken as high up as 6,000'. We have specimens from Kalka in March and August. It is likely to be taken during most months of the year.

63. *Mycalesis visala visala*, Moore.

This butterfly is fairly common towards Mussoorie, but our area is rather out of its range, so it is only likely to be taken very occasionally at low elevations in the Kalka district. Specimen from Chandigarh, 20-10-37.

64. *Mycalesis lepcha lepcha*, Moore.

This is the only member of the genus likely to be taken at the altitude of Simla. It is by no means common but I came across a fair number this year at the end of May in the Nullah between the Convent and Chota Simla at 7,000'. This must be about as high as this species ventures. Hitherto I had only caught it in early April in one of the Nullahs this side of Tara Devi, and here, at 6,800', in the compound. Like all members of the genus it prefers jungle country, and up at Simla, at any rate, the D.S.F. seems to be the only form that appears.

65. *Lethe sidonis vaivarta*, Doherty.

All the members of this genus are lovers of forest country and the majority of them will be found not lower than 7,000'. Their real habitat is the forest strip between Narkanda and the inner mountains where the forest country ceases at the end of the monsoon area.

This species is not common in our district and our specimens come from 9,000' in Kulu, de Rhé Philipe mentions having caught one or two near Simla, but it will undoubtedly be found near Narkanda from July to the autumn.

66. *Lethe maitrya*, de Nicéville.

Not an uncommon insect in the Narkanda forests. It is not likely to be found much below 8,500', and flies in the autumn.

♂ *Lethe nicetas*, Hewitson.

We have no record of the capture of this insect. It will probably be found in the Narkanda-Bagi country in the autumn.

67. *Lethe jalaurida jalaurida*, de Nicéville.

Is found rather sparingly in the Narkanda-Bagi country and in Kulu above about 8,000' from June to September.

68. **Lethe goalpara narkanda*, Fruhstorfer.

A rare species found in the same country as the above. Specimens from Hutoo, 9,500' and Kulu, 9,000', in July and August.

69. *Lethe rohria dyrta*, Felder.

Very common 6,000'—9,000' from the end of March to October.

70. *Lethe confusa confusa*, Aurivillius.

Differs from all others of the genus found in our area in being mainly a low altitude insect, and near Simla it does not seem to come much above the 3,500' mark, although we have a specimen from Nachar taken at 7,000'. It will be taken from Spring to Autumn, but is not a common species.

71. *Lethe insana insana*, Kollar.

A rare and rather local insect whose real home is the country beyond Narkanda, though de Rhé-Philipe reports captures on the Mahasu—Mashobra ridge and we have a record of one from Simla at 7,000'. I found it common in the middle of September one year in the forest just beyond the Dak-Bungalow at Sungri, 8,500'. It flies very slowly and is easy to catch.

72. *Lethe verma verma*, Kollar.

Very abundant in suitable country from May to September 6,000'—9,000'.

73. **Lethe pulaha pulaha*, Moore.

A rare butterfly of the inner hills. We have two from Wangtu, 6,000' taken in August.

Lethe yama yama, Moore.

Given by Evans as appearing from 'Kulu to Burma'; but we have no record of its capture as far west as this. If it is taken it will probably be found in the Narkanda country just before the rains.

74. *Pararge schakra*, Kollar.

Very common at most seasons above 6,000'. Favours sunny banks of roads, rocky hillsides etc.

Pararge moerula, Felder.

A rare butterfly of the inner hills which will not be taken much below 10,500'. Recorded from Lahoul and we have a dubious specimen from Shipki at the end of May.

75. *Pararge moerei*, Butler.

A very local but not uncommon butterfly in the places it chooses to inhabit. It is most likely to be taken at the end of August and can be caught on the Thibet road by the Rest House at Kufri. De Rhé Philipe also mentions other places on the Mashobra-Mahasu Ridge between May and September.

Orinoma damaris, Gray.

Recorded by Evans as extending from 'Kangra to Karens'; but we have no record of its capture in our district.

76. **Maniola pulchra pulchra*, Felder.77. *Maniola lupinus cheena*, Moore.78. **Maniola daveudra daveudra*, Moore.

These three butterflies are all inhabitants of the high inner hills and have been taken in Lahoul, at Shipki and Wangtu, above 12,000', in July. *Pulchra* is common and the other two considerably less so.

79. *Eumenis parisatis paris*, Le Cerf.

A local, but not uncommon, insect in the places it chooses. It favours open, rocky country between 6,000' and 7,500', but may be caught in other localities. I have seen a number on the road to Wildflower Hall beyond the Dhali filter beds, and also flying over the cricket ground at Chail. Season; early May to early July and during breaks in the rains.

80. **Eumenis mniszechii baldiva*, Moore.

Not uncommon in the inner ranges above about 11,500' in July. Specimens from Wangtu, 11,500', and Shipki, 13,000'.

81. *Aulocera brahminus brahminus*, Blanchard.

De Rhé Philipe gives Kulu and the Sutlej above Rampur, but this must be exceptional as our experience points to its being a high elevation butterfly seldom found nearer than the Baspa Valley at about 13,500'. We have specimens from the Baspa Valley in July and, judging from the numbers of this insect we have had brought to us from the Shipki neighbourhood, it must be common there.

82. *Aulocera padma padma*, Kollar.

A common butterfly which appears towards the end of April and is most abundant just before the rains break. A much scantier brood appears after the rains. Flies from about 6,000' to 10,000', but is commonest above 7,500'.

83. *Aulocera swaha swaha*, Kollar.

A fairly common species which makes its appearance at similar altitudes to the last during the middle of August. It seems to patronise sunny forest glades and the edge of wooded country, whereas . . .

84. *Aulocera saraswati*, Kollar,

is more a butterfly of the open khudsides where it swarms from mid-August until after the rains. It descends lower than *padma*. Both will be caught up to quite 10,000'.

85. **Erebia kalinda kalinda*, Moore.

An uncommon species of the high hills. Several specimens from Shipki, 14,000', and the Baspa Valley, 12,000', taken in July, '39.

86. **Erebia shallada shallada*, Lang.

A rare species of the high inner hills above about 12,000'. We have it from the Rhotang Pass in July at 13,500'.

87. *Erebia nirmala nirmala*, Moore.88. *Erebia scanda scanda*, Kollar.89. *Erebia hybrida*, Butler.90. *Erebia annada caeca*, Watkins.

Apart from *scanda* which may be recognised by the white irrorations on the under hindwing, these are confusing members of the genus to separate in flight, though once caught it is a fairly easy matter. The first three favour damp wooded localities, but *annada caeca* seems to prefer open country; they all fly with the same distinctive hopping flight.

Both *hybrida* and *annada caeca* are double brooded, the former being caught in the middle of May and the middle of August, and the latter, the first and the last of the four to appear, will be taken from mid-April to the first week in May, and again early in October. They will be taken from about 5,500' to 8,500'.

Neither of these is as common as *scanda* which appears during early and mid-August. However, much the commonest of the four is *nirmala*, which swarms in forest country from the end of May to July and later. They will be taken from about 5,000' to 8,000'.

91. *Erebia hyagriva*, Moore.

Generally a distinctly scarce member of the genus, though one year I found it fairly abundant. It very much resembles an *Ypthima* and inhabits the same open hillsides and lightly wooded country, where it may be taken from 5,000' to 8,000' at the end of August and in September.

92. *Ypthima nareda nareda*, Kollar.

A common butterfly from May to October, 5,000' to 8,000'. Like other members of the genus it prefers open hillsides and lightly wooded country.

93. *Ypthima asterope maharrata*, Moore.

A plains species which does not extend any distance into the hills. Common about Kalka and Chandigarh after the rains.

94. *Ypthima hubneri hubneri*, Kirby.

Also a plains species which may be taken sparingly at low elevations up to a height of 6,000' after the rains.

95. *Ypthima avanta avanta*, Moore.

Will be caught occasionally from low elevations to about 4,500' during and after the rains. We have no record of the D.S.F.

96. *Ypthima baldus baldus*, Fabricius.

May be taken fairly abundantly below about 5,000' on the Khudsides in March and early April. Above 5,500' it is rare but I have caught it here at 6,800'. It will also be taken during and after the rains.

97. **Ypthima indecora*, Moore.

Will be taken very sparingly up to 5,500' during the rains. We have records of its capture below Annandale.

98. *Ypthima sakra nikaea*, Moore.

Very common in suitable country from May to October, 4,000' to 9,000'.

99. †*Melanitis leda ismene*, Cramer.

May be taken very sparingly in wooded country up to 6,500' before the rains and also in October and November in the Simla neighbourhood, more commonly at lower elevations.

100. ***Metanitis phedima galkissa*, Fruhstorfer.

A very scarce butterfly near Simla, though presumably met with more frequently at lower heights. Specimen taken behind Jakko 29-5-39, 7,000', and two or three worn specimens at 6,000' in June.

NYMPHALIDAE.

101. **Charaxes fabius fabius*, Fabricius.

Very rare here. Recorded from Jubilee Hill, 6,500', in late April.

102. *Eriboea athamas athamas*, Drury.

May be caught from plains level up to at least 9,500' before and after the rains. It is not a particularly common species and, like others of the genus, is not easy to catch. It may be taken in all types of country.

103. *Eriboea dolon dolon*, Westwood.

This beautiful butterfly is a rarity here. I only know of two spots where it may be taken. One is the nullah between Chota Simla and the Convent, and the other is on the Retreat Hill behind the water tank at Mashobra. It is on the wing for a very short time from the third week in May and nearly always flies about the tree tops. I have been told that it may be brought within catching distance by means of throwing up a handkerchief wrapped round a stone . . . being a fighting insect it pursues it on its downward course. Probably the best method of taking this insect is to climb a tree which it favours and to await it there with a long-shafted 'dodger'. I have seen several of these butterflies but the only one I have myself caught was one that was misguided enough to take an excursion near the ground. However it is caught, this butterfly is a prize well worth having.

104. *Dilipa morgiana*, Westwood.

This rather rare butterfly may be taken from about 2,500' to at least 7,500'. It seems to have three broods as we have records of catches from Chaba, 3,000', at the end of March, Shamri Nullah, 4,700', at the beginning of April, and from Simla in June and after the rains. The male is rather uncommon but one or two may be taken each year. The female, however, is excessively rare and I only know of two records of its capture, one that de Rhé Philipe mentions near Sipi and one I was lucky enough to obtain at B.C.S. shortly after I had started collecting—beginner's luck! This butterfly is greatly attracted by rotting fruit.

105. **Apatura ambica ambica*, Kollar.

A great rarity of which we know of one capture only . . . in late September above Chadwick Falls. Rumour has it that it may be taken on the last 'tibba' at the Simla end of Tara Devi. It should also be caught before the rains.

106. *Sephisa dichroa*, Kollar.

Found from 3,000' to 8,000' in late May, occasionally during, and again after the rains. It is rather local but will be found commonly enough in damp nullahs in oak forest where it comes readily to water. It may be taken freely at Chadwick Falls, San Damiano, behind Jakko and from the Tara Devi Nullahs.

107. *Diagora persimilis zella*, Butler.

A somewhat scarce insect that may be caught from April to June. I have caught it both in open and lightly wooded country.

Diagora nicevillei, Moore.

This rare butterfly has been recorded from Dalhousie and Mussoorie, so it may be taken in our area.

108. ***Hestina nama*, Doubleday.

One specimen taken in Simla 25-5-'39. This is an extension of its range. Hitherto it has not been recorded as far west as our district.

Calinaga buddha buddha, Moore.

We have no record of the capture of this insect in our area though we know of some taken in Kulu. It appears in the early spring.

109. *Stibochiona nicea nicea*, Gray.

Has been caught in the Sutlej valley near Rampur, but apart from that we have no information about its appearance, so it is presumably very rare. It should be taken just before the rains.

110. *Euthalia garuda anagama*, Fruhstorfer.

Will be caught rather sparingly round Kalka wherever the mango tree grows and rarely into the hills up to 7,000'. We have a record of its capture on the Ridge in June. At lower altitudes it will be taken from early spring to late autumn.

111. *Euthalia lubentina indica*, Fruhstorfer.

Very rare in our area; though it has been caught up to the elevation of Kufri Hill, 8,500', the low river valleys are more likely to harbour this insect. Season --- summer and autumn.

112. *Euthalia patala patala*, Kollar.

Will be picked up, not uncommonly, in the neighbourhood of oak forest from the beginning of the rains to August. It is very fond of rotting fruit.

113. *Limenitis danava*, Moore.

A rare butterfly, especially here, the western edge of its range. I took a specimen in the nullah between Chota Simla and the Convent, 17-5, and we have records of two others from Chadwick Falls, 6,500', in mid-April. It may also be taken after the rains. Before the rains, damp nullahs would seem to be the most likely spots to effect a capture.

114. *Limenitis trivena pallida*, Tytler.

This butterfly is rather local and is out for a short period just before the monsoon, appearing during the third week in May. It may be taken in very great numbers on the Mashobra-Kufri Ridge and I have also had it behind Jakko, and at Theog. It does not seem to descend much below 7,000'.

115. *Pantoporia selenophora selenophora*, Kollar.

Record from Patalnala, this side of Chaur, which is probably the western limit of its range. It is not uncommon further east.

116. *Pantoporia opalina opalina*, Kollar.

Very common in spring and autumn in damp nullahs, clearings in forests, etc. from about 4,000' upwards.

117. **Pantoporia asura asura*, Moore.

A rare butterfly that may occasionally be taken above about 6,000' before the rains. We have a specimen from Simla, 6,500', taken in June and one from Nachar, 7,000' (inner hills) in July.

118. *Pantoporia perius*, Linnaeus.

A plains species that occasionally finds its way up to Simla. I caught a specimen here 29-5-38, and we have a record of one taken on 20-9-37, at 3,000'.

119. *Neptis mahendra*, Moore.

A common butterfly from the beginning of May until autumn above about 6,000' in the usual localities favoured by members of this genus. . . damp nullahs and forest clearings.

120. *Neptis hylas astola*, Moore.121. *Neptis hylas varmona*, Moore.

Very common butterflies from spring to autumn; *varmona* will be found in the foothills and *astola* higher up.

122. *Neptis yerburyi yerburyi*, Butler.

Rather similar to *mahendra* in appearance though slightly less common. It will be caught in the same localities as *mahendra* but it appears at rather an earlier date, being caught from early April up till the rains and again at the end of September, and at the beginning of October. It will be caught between about 6,000' and 8,000'.

123. *Neptis sankara sankara*, Kollar.

A very local butterfly that appears just before the rains between about 4,500' and 8,000'. It may be caught in plenty at San Damiano, Chadwick Falls and in the nullah between Chota Simla and the Convent.

124. *Neptis ananta ananta*, Moore.

This is a great rarity here and the first specimens we had come across were caught between June 2nd and 5th this year at 5,500' in the nullah below the Walker Hospital.

Neptis zaida zaida, Doubleday.

Given as occurring from Murree to Kumaon; but we have no record of its being taken in our area. It is a low elevation butterfly and appears in the early summer.

125. *Cyestis thyodamas ganescha*, Kollar.

Will be found from fairly low elevations up to about 7,500'. It is a familiar butterfly which may be caught in any sort of country except deep forest and bare hillsides, though it has a decided preference for the neighbourhood of water. It can be taken from early May until the autumn.

126. *Pseudergolis wedah*, Kollar.

Rather a local butterfly which will not often be found away from water. In certain nullahs, such as that above Chadwick Falls and the nullah between Chota Simla and the Convent, it is common. It may be taken from early spring to the autumn.

127. *Hypolimnas misippus*, Linnaeus.

Neither of us have caught this butterfly in Simla, nor seen specimens that were definitely taken here, but we have sufficient information to state that this species does occur at this height after the rains. In the Kalka neighbourhood it is of more frequent occurrence.

128. *Hypolimnas bolina*, Linnaeus.

May be taken very sparingly in Simla in September and October, rather more frequently below 5,000'.

129. *Kallima inachus huegeli*, Kollar.

This butterfly is by no means common here. A few may be seen each year, however, though possibly not caught, because it so often settles in inaccessible spots. It will be taken during May and early June and again after the rains. It will not be found very often away from oak forest and consequently will be caught between about 3,000' and 8,000'. I have found the forest country below the K. S. Railway on the Simla side of Tara Devi good country for this butterfly.

130. *Precis hierta hierta*, Fabricius.

131. *Precis orithya swinhoei*, Butler.

Both common plains butterflies. *Orithya* is common up to 6,500'; *hierta* is not nearly so common. Both seem to favour dry river beds and other stony ground and they may be taken up to 8,500' from spring to autumn.

132. *Precis lemonias persicaria*, Fruhstorfer.

A fairly common species that may be taken in gardens up to about 8,000' at the end of April and the beginning of May, during suitable weather in late July and early August, and again at the end of September and the beginning of October.

133. *Precis almana almana*, Linnæus.

A common butterfly in the plains and hills below 4,000' from spring to autumn, but rather a rarity in Simla, where I have taken it at the end of September.

134. ***Precis atlites*, Linnæus.

Of rare occurrence in the Kalka district where we have taken it in October and November.

135. *Precis iphita siccata*, Sticherus.

A common butterfly from low elevations up to about 9,000'. It may be taken from spring to autumn.

136. *Vanessa cardui*, Linnæus.

An abundant butterfly from the plains up to about 10,000'. It flies during most of the year and will be freely caught in gardens and in the neighbourhood of thistles.

137. *Vanessa indica indica*, Herbst.

A very common butterfly which will be caught in the same type of country as the last, above about 4,000'.

138. *Vanessa canace himalaya*, Evans.

A common butterfly in the neighbourhood of water. May be caught from early spring to late autumn, from low elevations to quite 9,000'.

139. ***Vaessa egea cognata*, Moore.

A very rare butterfly near Simla. One was taken at 7,000', but we know of no others taken so low. I have taken them on the summit of Hatu 12-9-38 and have heard of others being taken in that neighbourhood. We also have specimens from Shipki and Chini at 12,000' in July. In the nearer hills it may also be taken in June. I can recommend the patches of meadow land between 10,000' and 11,000' on Chaur, the Kala Bagh side, as being a headquarters of this insect—in mid September at any rate. Numbers can be seen and will be easily caught as they readily settle on flowers.

Vanessa ladakensis, Moore.

Given as extending from Ladak to Sikkim. No information.

140. ****Vanessa urticae rizana**, Moore.

A rare butterfly of the high inner hills. Specimens from the Shipki Pass, 15,000', in July.

141. **Vanessa cashmirensis aesis**, Frubstorfer.

Will be found during every month of the year round Simla. It is common from about 5,000' to 15,000'.

142. **Vanessa xanthomelas fervescens**, Sticherus.

Round Simla this butterfly appears in early spring and flies till May. It is rather local but not uncommon in certain damp nullahs. In the Narkanda neighbourhood it is commoner, appearing at a later date and flying till the rains.

143. **Symbrenthia hippoclus khasiana**, Moore.

May be taken occasionally from low elevations up to 7,000' in June. Most of my specimens have been taken on buddleia flowers.

144. **Symbrenthia hypselis brabira**, Moore.

May be taken very sparingly from about 4,000' to 7,000', from early spring until the rains and again after them. We have two specimens taken at 6,000', 8,400' and 14,400'.

Symbrenthia niphanda hysudra, Moore.

A rarity throughout its range, Kashmir to Kumaon; we have no information about it.

145. **Argynnis hyperbius hyperbius**, Linnæus.

Will be found, not uncommonly, from plains level to about 7,000', June to October, in open country, glades and gardens.

146. **Argynnis childreni sakontala**, Kollar.

A common butterfly from May to July and again after the rains, above about 5,000'.

147. **Argynnis kama'a**, Moore.

Abundant above 7,000' and appears at the same seasons as the last mentioned. Both species may be taken in plenty on Kufri Hill. It is very fond of flowering thistles.

148. **Argynnis adippe jainadeva**, Moore.

Will not be found much below 10,000'. It has been caught on the Jalori Pass and we have specimens from the Shipki Pass in July. It may possibly be found on some of the higher hills beyond Bagi.

149. ****Argynnis clara clara**, Blanchard.

A rare fritillary of the high inner hills. Several from the Baspa Valley, July '39, at 13,000'.

150. ****Argynnis eugenia mackinnoni**, De Nicéville.

A rare insect of the inner hills. Specimens from Shipki, 12,000', and from the Baspa Valley, 13,000', taken in July.

151. **Argynnis pales sipora**, Moore.

A scarce butterfly of the inner hills. We have specimens from the Rhotang Pass at 13,000', caught in July.

152. **Argynnis lathonia issoea**, Doubleday.

Very common throughout the year in open country from 5,000' to 15,000'.

153. **Melitaea arcesia sindura**, Moore.

Will be found chiefly at high elevations in the inner hills, though de Rhé Philipe reports one taken on the way to Kulu. Specimens from the Shipki neighbourhood, 14,000', taken in July.

154. *Atella phalanta*, Drury.

A common autumn butterfly from the plains up to 9,000'. It may also be taken sparingly before the rains and in July.

155. *Ergolis merione tapestrina*, Moore.

May be taken occasionally in the Kalka neighbourhood after the rains. It does not penetrate far into the hills.

156. *Pareba vesta anomala*, Kollar.

Flies from about 2,000' to at least 8,500'. It will be found to swarm in the bed of Shamri Nullah just above its junction with the Chota Simla stream, from the last week of June throughout most of July. Occasional specimens make their way up to Simla.

ERYCINIDAE

157. *Libythea iepita iepita*, Moore.

This butterfly is very common from April till the autumn. It will be found from about 3,500' up to about 9,000', wherever there is moisture.

158. *Libythea myrrha sanguinalis*, Fruhstorfer.

This species is not as common as the last but it may be taken frequently enough in damp nullahs during the same seasons and at the same altitudes.

159. *Dodona durga*, Kollar.

A common butterfly that will be found in lightly wooded spots from about 4,000' to 8,000' between the end of March and November.

160. *Dodona dipœa nostia*, Fruhstorfer.

A rare butterfly. We have a record of one taken at Potters' Hill, 6,500', in June.

161. *Dodona eugenes eugenes*, Bates.

Considerably less common than *durga*, it prefers wooded nullahs and shady surroundings. It is common behind Jakko some years, and I have taken it in the nullahs on Tara Devi. It will be taken from May till the rains and again after them, above about 5,000'.

162. *Abisara echerius suffusa*, Moore.

May be taken occasionally in the Kalka neighbourhood before and during the rains.

LYCAENIDAE.

163. †*Castalius rosimon rosimon*, Fabricius.

A fairly common butterfly at the foot of the hills from spring to autumn. I have taken a specimen at 6,900' in September, but it is very rare at such an altitude. It is a butterfly with a preference for forest glades and lightly wooded country.

164. *Tarucus venosus venosus*, Moore.

The members of this genus are generally found in fairly open country among the foothills and in the plains below them. Some of them may be taken as high up as Simla itself. *Venosus* is the commonest representative of the genus in our area up to about 4,000', above that height it is rare. Season before and after the rains.

165. *Tarucus callinara*, Butler.

Much the least uncommon of the genus round Simla where one or two may be picked up every year up to at least 7,000', between April and June and again in October. Lower down it is common and its season is more protracted.

166. *Tarucus extricatus*, Butler.

A scarce butterfly that can be picked up at the foot of the hills. We have a specimen taken at Chandigarh in October, but no other information.

167. *****Tarucus alteratus***, Moore.

A common butterfly from the plains up to about 4,500' from June to October. Above that altitude it is rare.

168. *****Tarucus nigra***, Bethune Baker.

Not an uncommon butterfly in the lower valleys below about 4,000' from June to October.

This is a confusing genus to identify and the specimens upon which we base our list were identified by Brigadier Evans.

169. *Syntarucus plinius*, Fabricius.

A common insect from the plains up to about 4,000' from June to October. It may occasionally be taken in open country and gardens in Simla itself and even considerably further into the hills.

170. †*Azonus ubaldus*, Cramer.

In the low country where babul trees grow it is a fairly common insect before, during and after the rains. It may be taken occasionally in Simla itself. Specimens taken in Simla 24'5; 25'5, 6,800'.

171. *Azonus uranus*, Butler.

Will not be found quite so far into the hills as the last and may be taken during and after the rains.

172. *****Everes argiades indica***, Nov.173. *Everes dipora*, Moore.

Both of these may be caught quite commonly in open country from early April until July and again after the rains. Of the two *dipora* is rather the commoner and they will both be taken from the foot of the hills to about 9,000'.

174. *****Everes parrhasius parrhasius***, Fabricius.

Its range is given by Evans as 'Ceylon . . . S. India' but it is interesting to note that Mr. Jones has specimens from Jubbulpore and Hardwar as well as Chandigarh, Kalka and Simla, in our area. It is not particularly uncommon even in the Simla neighbourhood, specimens having been taken up to 6,700', between April and October.

175. *Lycaenopsis puspa gisca*, Fruhstorfer.

Rather scarce in Simla but found to be common at Koti, 3,000', and presumably along the foot of the hills. It has been taken up to 10,000'. Season before and after the rains.

176. *Lycaenopsis vardhana*, Moore.

A common butterfly in the hills beyond Narkanda up to about 10,000'. Nearer Simla it is rather local and, though it has been taken as low as 6,000', it is uncommon below 7,500'. It may be taken in plenty in the San Damiano nullah and on Kufri Hill. It likes lightly wooded surroundings and may be taken from May to the rains and again in September.

177. *Lycaenopsis albocerulea*, Moore.

A rare hill species, especially here, the western edge of its limits. Records of captures between 6,000' and 7,000' in June, July and October.

178. *Lycaenopsis cardia dilecta*, Moore.

De Rhé Philipe mentions a capture near Kufri in October. We have no other information about this species.

179. *Lycaenopsis huegclii huegclii*, Moore.180. *****Lycaenopsis ladonides gigas***, Hemming.

181. *Lycaenopsis argiolus kollari*, Westwood.

The females of these three butterflies are superficially very similar except in the matter of size and their habitat is the same . . . gardens, shrubs, hedges, etc. *huegelii* is extremely common, *ladonides* considerably less so. *argiolus* seems to prefer higher altitudes . . . the Kufri ridge and the top of Jakko are good places for it, though I have had it as low as 5,500' and it probably can be caught considerably lower than that. The other two may be caught from about 3,000' up to the height of Hutoo, 10,450'. Season for all three:—March to October.

Polyommatus vicrama vicrama, Moore.

Evans gives Shipki as a locality for this insect. Our specimens come from Purl, W. Thibet, a short way beyond, where it is apparently not rare. It may turn up on the Shipki Pass.

182. *Polyommatus astrarche*, Bergstrasser.

A fairly common butterfly from March until after the rains, it may be taken from the plains up to at least the height of Jakko, 8,000', in open sunny places.

183. **Polyommatus pheretes lehana*, Moore.

Not uncommon over 12,000'. We have specimens from the Shipki neighbourhood and the Baspa Valley taken in July.

184. ***Polyommatus omphisa*, Moore.

A fairly common butterfly of the higher hills above about 10,000'. Specimens from the Jalori Pass in July.

185. ***Polyommatus metallica metallica*, Felder.

A butterfly that may be taken above about 9,500'. Common in the Shipki neighbourhood in July. Also taken on Ganasi Dhar, 9,800', in July.

186. *Polyommatus galathea galathea*, Blanchard.

Not uncommon in the inner hills above about 10,500' in July. I also have a worn specimen taken as near to Simla as Sungri at 11,000' in September.

187. ***Polyommatus orbitulus ellisi*, de Nicéville.

A rare blue of the inner hills. We have had it from Shipki and the S. W. borders of Thibet in July.

188. *Polyommatus eros ariana*, Moore.

Fairly common in the Shipki neighbourhood above about 8,000' in July. A *Polyommatus* which seems to be mid-way between *ariana* and *dux* may be taken in the country between Mattiana and Sungri after the rains. Above 9,500' it is by no means uncommon.

189. *Chilades laius laius*, Cramer.

May be taken from spring to autumn at the foot of the hills wherever the lime tree grows. We have records from Kalka and Chandigarh in October but it does not seem to be particularly common at that season. We have no records of its being taken further into the hills.

190. †*Zizeeria trochilus trochilus*, Freyer.

A fairly common butterfly at low elevations though likely to be overlooked on account of its minute size. It may be taken throughout the year in rough grass country such as all *Zizeeria* like. It can be caught up to 7,000' though it is not common at that altitude. I have caught it at 6,900' in Simla in October and November and have seen it at 5,500' in February.

191. *Zizeeria maha maha*, Kollar.

During the warmer months of the year this is a very common butterfly at low elevations. Above 4,000' it is common only from July to October though specimens may occasionally be caught before the rains.

192. *Zizeeria lysimon*, Hubner.

Fairly common at low elevations between April and October, it may be caught not uncommonly about the end of October up to 7,000'.

193. **Zizeeria gaika*, Trimen.

May be taken occasionally at low elevations between April and October. We have a specimen from Chaba, 3,000', in September and one from Simla, 6,000', 20-9-39.

194. *Euchrysops cnejus*, Fabricius.

Like other members of this genus it will be caught in meadow country and about hedges and bushes. At low elevations it is common from April to October. It can be taken up to 8,500' and in Simla it is by no means uncommon in September and October.

195. ***Euchrysops contracta contracta*, Butler.

Two specimens taken at B.C.P.S., 6,800', 1-5-39 and 9-5-39 are the only records we have of the appearance of this butterfly in our district. It is more likely to be caught at plains level.

196. †*Euchrysops pandava pandava*, Horsfield.

Not very common at the foot of the hills, rare in Simla. We have captures from Chaba and Simla in September.

197. *Catachrysops strabo*, Fabricius.

Common in the plains and foothills but scarce in Simla, though it may be taken up to 10,000'. The season for this insect is July to October in Simla and February to late October at lower elevations. In Simla it is commoner after the rains.

198. *Lampides boeticus*, Linnaeus.

Very common to at least 10,000'. In Simla it may be taken from February to late November.

199. **Jamides bochus bochus*, Cramer.

One specimen from Naldera, 6,500', 27-9-37. No other record. One would expect to find this insect at low elevations in damp nullahs and flying round bushes, etc.

200. **Nacaduba nora nora*, Felder.

This year I have taken about a dozen of these insects in the compound here, 6,800', on different dates between the end of April and the beginning of the rains, so that one may presumably say that it is common even at this height. It is a very unobtrusive insect and so possibly escapes notice. At lower elevations it is doubtless commoner and may be taken from early spring to late autumn. Here it may be taken again after the rains. It will not be found much above 7,000'.

201. *Lycaena pavana*, Kollar.

Very common early spring to late autumn, from about 5,000', in open, sunny places.

202. *Lycaena phloeas indicus*, Evans.203. *Lycaena phloeas flavens*, Ford.

Very common early spring to late autumn; *indicus* will be found above about 5,000', and *flavens* in the inner ranges Shipki way, though intermediate specimens will be found in the country between.

204. *Lycaena kasyapa*, Moore.

We have no records of this butterfly having been taken any nearer than Lahoul and Shipki in July, although de Nicéville mentions a capture on the Thibet Road near Simla. It may be found in the Bagí country above 8,000' in open places in the forest in the summer,

205. *Heliophorus sena*, Kollar.

Very common anywhere the sorrel plant grows . . . from about 4,000' to 8,000'. Early spring to October.

206. *Heliophorus oda*, Hewitson.

This beautiful little blue is rather local and will not often be taken below about 7,500', though I once took a very worn female in a nullah below B.C.S. at 5,400', in late March. It may be taken in fair numbers in the San Damiano nullah between about the 10th of May and the 1st of June. The bushes at the roadside between the rest-house and the bazaar at Kufri are another profitable locality. On June 4th I found it common flying around the bushes beside the mule track on Ganasi Dhar, 9,800'.

Heliophorus bakeri, Evans.

This has not yet been taken in the district, but it is included on the grounds that, though Evans gives its locality as Chitral . . . Dalhousie, it has since been taken in Nepal. It would be taken in similar places to *oda*, which it resembles.

207. *Heliophorus androcles coruscans*, Moore.

A rather uncommon butterfly that may be taken in the nullahs on the Mahasu ridge, on Kufri Hill and in Simla in June and September.

208. **Strymon sassanides*, Kollar.

An uncommon butterfly of the inner hills. Specimen from Spiti at 12,000', in July.

209. **Euaspa milionia*, Hewitson.

A distinctly rare little butterfly. It will be taken in damp nullahs just before the rains. Specimens from the nullah just below the Walker Hospital 5.6., the Glen 24.5., and the nullah between Chota Simla and the Convent.

210. *Thecla icana*, Moore.

Members of this genus are generally caught in nullahs and glades in forest country. Very occasionally *icana* may be taken on Kufri Hill, on the Jalori Pass and in the Narkanda . . . Bagi country where in places it is not rare. I have taken specimens on the road between Bagi and Khadrula in September among swarms of *Thecla syla*. This, I should imagine, is as good a spot as any for this insect. It flies in August and just after the rains.

211. *Thecla bieti dohertyi*, de Nicéville.

May be caught in the same localities and at the same seasons as the last. Round Narkanda it is not particularly uncommon.

212. *Thecla ataxus ataxus*, Doubleday.

A rare butterfly. We have taken it in the San Damiano Nullah and in the nullah between Chota Simla and the Convent at the end of May.

213. *Thecla birupa*, Moore.

Simla is the western limit of this butterfly and it is rare here. We have had it in the nullah between Chota Simla and the Convent, 7,000', and in the nullahs on the north-western slopes of Tara Devi. It has also been taken on Kufri Hill. It has been observed flying round holly trees.

214. *Thecla syla syla*, Kollar.

A very common insect in damp nullahs and glades wherever there are oak trees above about 7,000'. It will be taken from early May until the rains and again directly after them.

215. *Chaetoprocta odata*, Hewitson.

Is common round walnut trees in early June. It may be taken from about 4,500' up to the Chini district.

216. **Curetis acuta dentata*, Moore.

Rare in our district and most likely to be taken in the lower valleys, though I caught a female on May the twenty-third of 1938 in the compound here, 6,800'. Specimens from Chaba in October, and Koti in September.

217. *Iraota timoleon timoleon*, Stoll.

Rare in this district. Several specimens taken in early June at 6,000'. Specimens; female, Chaba 3,000' . . . male, Summerhill 6,500' . . . male, Simla, 6,000'. Mainly a low elevation insect.

218. ***Amblypodia alemon*, de Nicéville.

One specimen taken in early June in the San Damiano Nullah, 7,500'. This will be the western limit of this butterfly's range and it will be very rare.

219. *Amblypodia dodonea*, Moore.220. *Amblypodia rama rama*, Kollar.221. *Amblypodia ganesa ganesa*, Moore.

These three butterflies may be caught from early May until the rains and again in August until late October. They are very common, especially before the rains, in damp nullahs in oak forest.

222. *Surendra quercetorum quercetorum*, Moore.

Rare. We have several specimens taken 31.7., Koti, 3,000'. It is a low elevation butterfly and will be taken in jungle country.

223. *Apharitis lilacinus*, Moore.

Rather an uncommon butterfly that will be taken at the foot of the hills. We have several specimens taken at Chandigarh in April and October. It seems to have a liking for gram fields.

224. *Spindasis vulcanus vulcanus*, Fabricius.

Not uncommon in the lower hills and the plains at their foot. At low elevations it may be caught from March to July and again after the rains. It will also occasionally be taken in Simla and even up to Mashobra, just before the rains and in October.

225. **Spindasis ictis ictis*, Hewitson.

Rather uncommon in the plains and it does not extend into the hills. Specimens from Chandigarh between March and July and in October.

226. *Spindasis elima uniformis*, Moore.

De Rhé Philipe mentions a capture on the Chail ridge in June. No other information.

227. *Spindasis nipalicus nipalicus*, Moore.

Not particularly uncommon in the plains and foothills of our district, it may occasionally be taken round Simla. Specimens:—two 26.5, 6,000', in the nullah below the Grand Hotel, . . . one at the end of May taken in the Glen, 6,000', . . . one in September from Chaba.

228. *Pratapa icetas icetas*, Hewitson.

A rare butterfly that will be taken in wooded country up to about 8,500'. It has been taken on Kufri Hill and we have records from Chadwick Falls, 6,500', and Simla, 7,000', all at the beginning of June. It is mainly a low elevation butterfly.

229. ***Pratapa cleobis*, Godman.

Very rare. This is the extreme western limit of its area. It is a low elevation butterfly and we have a specimen from Chaba, 3,000', 22.10.

230. ***Tajuria diaeus*, Hewitson.

Simla is also the western limit of this butterfly and it will be very rare. Also a low elevation insect. Specimens from the Glen, 6,000', and Tutikandi, 6,500', in May.

231. ***Tajuria cippus cippus**, Fabricius.

Mainly a butterfly of the eastern Himalayas and Burma, it is rare here and will mostly be caught at low elevations. All our specimens have been taken after the rains. Chaba, 3,000', 22.9 . . . Elysium Spur, 7,000', 3.9 . . . Simla, 6,000', 12.10.

232. **Horaga onyx onyx**, Moore.

A rare insect that may occasionally be taken from low elevations up to 7,000', shortly before the rains and in September. Specimens:—B.C.P.S., 6,800', 22-5-38 . . . Near Junga, 4,000', May . . . Chaba, 3,000', September.

Horaga viola, Moore.

A rare species that extends from Kangra to Kumaon. No record of its capture.

233. **Deudorix epijarbas ancus**, Fruhstorfer.

Not uncommon in June and July, it will often be taken settling on flowers. It should be looked for also where the pomegranate grows as the larvae feed inside the fruit. At this altitude, however, the larvae feed inside the horse-chestnut.

234. ****Virachola isocrates**, Fabricius.

A rare insect at this height, it is more likely to be taken at low altitudes in May, September and October in the neighbourhood of guava plantations. Specimens from Chaba, 3,000', in May, Koti, 3,000', in September, and a perfect female at B.C.P.S., 6,800', 20-10-38.

235. **Virachola perse perse**, Hewitson.

Its range is given as Kangra to Burma. It must be very rare and we have no record of it apart from de Rhé Philipe's mention of a capture somewhere near Kalka. Guava plantations at lower altitudes are the most likely places to take it.

Rapala varuna grisea, Moore.

Recorded limits, Kangra to Kumaon. No records.

236. ****Rapala schistacea**, Moore.

A rare insect and the only one that we know of that has been caught in our region is one taken for me on buddleia blossoms at B.C.S., 6,500', in the middle of June. It is more likely to be caught at low elevations.

237. ***Rapala melampus**, Cramer.

Rather uncommon, it may be taken from plains level to 10,000', just before the rains and in September and October.

238. **Rapala nissa nissa**, Kollar.

The only representative of this genus in our area that is common. It will be found from the end of April until just after the beginning of the rains. It is partial to damp nullahs and is also to be found flying round bushes and settling on flowers.

239. **Rapala micans selira**, Moore.

Usually not a common insect but this year it was to be had in plenty. I caught as many as I needed flying round flowers in the compound here, and saw a number of others about bushes between the Dhali filter beds and Mashobra, and settling on damp ground in the San Damiano nullah. It will be taken from the beginning to the end of May from about 5,500' to 8,500'.

240. ****Rapala extensa**, Evans.

One specimen from Spiti, 12,000', in August. This is rather far east for this butterfly.

241. **Sinthusa chandrana chandrana*, Moore.

A rare butterfly that will be taken in late May and June above about 4,500'. Records from the Junga neighbourhood at 4,500' and 5,000', 30.5 and 15.6.

Sinthusa nasaka pallidior, Fruhstorfer.

Given by Evans as extending from Kangra to Kumaon. No record.

HESPERIIDAE.

242. †*Hasora alexis alexis*, Fabricius.

One of the commoner of our skippers, I have frequently taken it settling on buddleia flowers between late June and September. It will be found from plains level to 7,000'.

243. ***Ismene jaina jaina*, Moore.

This is the western extreme for this butterfly so it is very rare. It will not be caught much above 3,500' and our only records are of one or two that were taken near Chaba at 3,000', 5.9.

244. **Bibasis sena sena*, Moore.

Again this is the western edge of this butterfly's limits. It is uncommon throughout its range and anyone who catches it in our area is very fortunate. Like the last-mentioned species it is a low elevation butterfly. One record from Chaba, 3,000', at the same date as the last.

245. †*Chaospes benjaminii xanthropogon*, Kollar.

This fine insect is a rarity here and is most likely to be taken at this altitude from the beginning of May to June. We have records from the San Damiano nullah, 14.5, and the Chadwick Falls nullah 25.5; de Rhe' Philipe also mentions having taken it at Koti in June. It is worth noting that, though it flies in the early morning, it does not do so exclusively, the first two mentioned specimens being caught at about mid-day. It ranges from fairly low elevations to about 8,000'.

246. *Badamia exclamationis*, Fabricius.

Not uncommon from the plains up to about 7,000'. Up here it will be seen from late June till August. I have caught all my specimens on buddleia blossom.

247. **Celaenorrhinus pulomaya*, Moore.

Very rare here. One specimen from Kalka taken in May at 2,000'.

248. *Celaenorrhinus leucocera leucocera*, Kollar.

One of the commoner skippers about Simla, it may be caught from about 4,000' to 8,000' from April to July. It seems to prefer damp, shady places and most of my specimens have been caught near water on bushes. Shamri nullah in April and May is usually a good spot for this butterfly.

249. **Celaenorrhinus munda*, Moore.

We have no reliable record of the appearance of this butterfly within our limits. It is very similar to *leucocera* and might easily be mistaken for it in flight. I have one specimen in my collection. This is a relic of an old school collection that was handed over to me when I first arrived here and the insect in question bore unmistakable signs of having been set by a boy . . . so it most probably was caught in the neighbourhood of the school . . . this is the nearest approach to any record we have got.

250. **Achalarus bifasciatus casyapa*, Moore.

A rare butterfly that may occasionally be caught above about 6,000'. We have two records of insects taken in June, one on the Elysium Hill at 6,700' and the other in the nullah below the old toll bar on the Mashobra road,

251. *Tagiades menaka*, Moore.

Not particularly uncommon in damp shady nullahs during May and June from low elevations to about 7,000'. It is given to settling flat on the undersides of leaves which makes it rather difficult to spot. I have also caught it on flowers. Chadwick Falls is a good neighbourhood for taking it and I have also seen it in the nullah between Chota Simla and the Convent.

252. *Tagiades litigiosa litigiosa*, Moore.**

May be taken in the same places and at the same seasons as the last-mentioned which it greatly resembles. However, it is a much less common insect. Recorded from the nullah below the Grand Hotel, 6,000', October, and Chadwick Falls nullah, 6,000', April.

253. *Coladenia dan fatih*, Kollar.

Not uncommon from the plains up to about 7,000'. It likes damp, shady places but it also comes to flowers in gardens. Late June, July and August is the season in Simla, but we have specimens taken in September and October at 3,000'.

254. **Sarangesa purendra*, Moore.**255. *Sarangesa dasahara dasahara*, Moore.**

These are two unobtrusive little insects that are likely to be overlooked. Their home is the scrubby jungle country at the foot of the hills, though they may be taken in open, grassy country up to 7,000'. Neither of them is at all common though *purendra* would seem to be the commoner of the two. We have taken at *dasahara* B.C.P.S., 6,800', 30-4-39 and another at a low elevation in October. We have taken *purendra* from July to October up to 6,500'.

256. **Odontoptilum angulata sura*, Felder.

An uncommon butterfly in these parts, it is mainly an inhabitant of the lower regions, though it has been caught on Kufri Hill at 8,000'. Season: spring and autumn. Specimens: Kufri Hill, 8,000', in June; Chaba, 3,000', in September.

257. *Syrichthus galba*, Fabricius.

Flies from spring to autumn in the grassy country at the foot of the hills but is not at all common in this part of India. It penetrates the lower valleys up to about 5,000'. Specimens: Chaba, 3,000' in September; Kalka, 2,000', in October; Shalogra, 4,000' in July; Shamri Nullah, 4,900' in October.

258. **Aeromachus stigmata*, Moore.

An undistinguished-looking little skipper that is rare here. It seems to keep to damp nullahs and flies before and after the rains. Records: Chadwick Falls nullah, 6,000', 10-6; near Junga Bridge, 4,500', in September; below the settling tanks on the Chota Simla . . . Kasumpti stream in July and September.

***Pedestes masuriensis*, de Nicéville.**

Recorded between Kulu and Assam. No records.

259. *Suastus gremius gremius*, Fabricius.

Fairly common at low elevations after the rains, probably in the neighbourhood of palm trees, it may be taken occasionally up to 7,000'. Records: Simla, 7,000', and Chandigarh, 2,000', both in October.

260. *Udaspes folus*, Cramer.

A largish, striking-looking skipper that is found from the plains up to about 7,000'. It is not common and flies in April and May. I have noticed it settling on dung.

261. *Notocrypta feisthamelii alyos*, Moore.

A local insect. Once the right spot has been found plenty may be taken. This year I found them in good numbers in the nullah between Chota Simla and the Convent where I caught a number of specimens, I noticed them

also about the same time in the San Damiano nullah. This was during the third and fourth weeks of May, but they can also be caught in July and after the rains, though less commonly. They seem to like flying in the shade in nullahs where there is water, but they also come to flowers occasionally. They are very difficult to see in flight but they have a habit of settling on stones to which they return time and time again.

Hyarotis adrastus praba, Moore.

Range: Kangra to Burma. No record. A low elevation insect.

262. ***Actinor radians**, Moore.

Rare throughout its range. Flies from about 2,000' to 5,000'. Specimens from Chandigarh, 2,000', in October and Kulu, 4,500', in August.

263. **Taractrocera danna**, Moore.

A common little insect in open, grassy country from the Mahasu ridge well into the hills. It does not often come below 7,000' and I have noticed numbers of them settling in the dust on the Hindustan . . . Thibet road beyond Mattiana. Season from early May until about the end of June.

264. ***Taractrocera maevius sagara**, Moore.

Not uncommon below about 5,000' in the same sort of country as the last. It will appear during most of the warmer months. We have had it from Kalka, 2,000', in April.

265. **Padraona dara**, Kollar.

Flies about bushes and flowers. Not rare above 6,000' from May to October.

266. ****Padraona cato clio**, nov.

Fairly common below 6,000'. It is very similar in appearance to the last-mentioned and its habits and seasons are the same. We have it from Chaba, 3,000', in August and September.

267. ****Astycus augias augias**, Linnaeus.

Very rare here. One specimen from Chandigarh, 2,000', in October.

Pamphila comma indicofusca, Verity.

Pamphila comma dimila, Moore.

Two high elevation insects about which we have no information. The range of the former is given as Chitral to Kumaon, and the latter as Bashahr to Kumaon.

268. ****Baoris eltola**, Hewitson.

Not uncommon from about 5,500' well into the hills to about 10,500'. Like other members of the genus it is given to settling on flowers. It may be caught in May, September, October and occasionally during the rains.

269. **Baoris discreta himalaya**, Evans.

A hill species that does not seem to be at all common here. Records from Simla at 6,500' in March and at 6,000' in July.

270. **Baoris sinensis sinensis**, Mab.

Not rare. We have records of specimens caught in mid-April, June and July all at 7,000' and I believe it is a post-monsoon species as well. Mahasu is reputed to be a good spot for this insect.

271. ***Baoris mathias mathias**, Fabricius.

A low elevation skipper which is fairly common in the Kalka . . . Chandigarh and Chaba districts. Our specimens are dated September and October but it will be on the wing during most of the warmer months of the year.

272. **Baoris guttatus guttatus**, Bremer,

273. **Baoris guttatus bada**, Moore.

The hill form, *guttatus guttatus*, will be found well into the hills . . . I have had it at Sungri, 8,500'. It is quite common in September and October when it will often be seen darting about flowers. *Bada* the low elevation form, will be caught at the same season up to 7,000' but it is not nearly as common. We have specimens taken in Simla at 7,000' in September and October.

274. **Baoris zelleri cinnara**, Wallace.

We have no record of this species ourselves, but de Rhé Philipe mentions having caught one in Simla. It is more likely to be taken in the Kalka country.

275. **Baoris bevani bevani**, Moore.

Quite common from the plains up to 7,000', it appears in April and early May round Simla but will be caught after the rains at low elevations . . . we have it from Chaba, 3,000', in September. I have caught it settling on mud in Shamri Nullah and also flying about flowers in the garden here.

276. ***Gegenes nostradamus karsana**, Moore.

Not common but will occasionally be caught at low elevations during and after the rains. Specimens from Chaba, 3,000', and Koti, 3,000', in July, August and September.

ADDENDA

LYCAENIDAE.

277. ***Zizeeria otis otis**, Fabricius.

Common up to 7,000' at the end of October and beginning of November.

NYMPHALIDAE.

278. ***Neptis narayana narayana**, Moore.

A rare and very local insect which is out for a short time just before the rains. It may be caught in the nullah between Chota, Simla and the Convent and I have seen it near Theog, mile 20/5, Tibet road.